

COASTAL-PLAIN PLANTS IN INLAND NOVA SCOTIA

A. E. ROLAND

ABSTRACT

Kejimkujik National Park lies near the headwaters of the Mersey River, in the center of southwestern Nova Scotia on the Atlantic Upland. Lakes and streams are numerous; in this glaciated area, granite, slate and greywacke areas are represented, along with numerous drumlins. Distributions of coastal-plain plants in this protected area are discussed. Maps of *Hydrocotyle umbellata* L. and *Cephalanthus occidentalis* L. are given as examples of plants that are rare or unknown in the Tusket River valley.

Key Words: coastal-plain flora, inland location, Kejimkujik National Park, Nova Scotia

The existence of a southern or coastal-plain flora in southwestern Nova Scotia has long been known. The presence of many species, rare or unknown elsewhere in Canada, was documented by M. L. Fernald and members of the Gray Herbarium Expedition (Fernald, 1921, 1922). Their explorations were mainly near the coast of Yarmouth and Shelburne Counties and, in particular, along the Tusket River system in Yarmouth County. Much of this area has now been lost to urban development or submerged as a result of hydro dam development.

Further studies in Yarmouth County have been carried out during the last few years and an ecological reserve for several of the rarer plants has been established further up the Tusket River at Wilsons Lake (Keddy, 1985). However, very little attention has been paid to presence of a southern flora towards the center of the province. C. A. Weatherby spent two weeks in the Ponhook region of Queens County, a region of lakes and bogs draining into the Medway River southeast of Lake Kejimkujik (Weatherby, 1942). Here, he found additional stations for *Lophiola americana* (Pursh) Wood, and the only known station in Canada for *Lachnanthes tinctoria* (Walt.) Ell.

The Mersey River system, running parallel to the Medway River to the east, contains wetlands supporting diverse coastal plain communities. Most of this watershed is protected inside Kejimkujik National Park, established in 1969. This is a region of stream, lakes and bogs. The park is located around the junction of Digby, Queens and Annapolis Counties, 50 miles (80 km) from the Tusket Valley in Yarmouth Co. and 40 miles (65 km) from the Atlantic coast at a level of 300 feet (95 meters) above sea level.

This area is over halfway up the slope of the Southern Upland of the province (Roland, 1982) and is approximately 25 miles (40 km) in diameter, with an area of 145 square miles (385 sq km). Its largest lake is Lake Kejimkujik, six miles long (nearly 10 km) and about six miles wide (Resource Atlas and Description, 1976).

The area was glaciated from the northwest so that many of the lakes and their shores are very rocky. The eastern side of the park has many drumlins which form rounded hills and several of the islands in the lake. The western half is formed predominantly from granite and greywacke and contains only small lakes and ponds. Only Lake Kejimkujik is margined by any considerable sandy beaches. Peaty shores are evident in many protected coves of Lake Kejimkujik and are well developed at the eastern end of the second largest lake of the park, Lake Peskowsk (Roland, 1982).

Forests occupy over 50 percent of the land area and of these, about three-quarters are of mixed stands; logging and frequent fires have largely resulted in a young second-growth forest. The coastal-plain plants are restricted almost entirely to margins of the lakes and streams.

Acer rubrum L. is the most common tree behind the beaches, with some beech and oak on the drumlins. In addition to the ever-present *Pteridium aquilinum* (L.) Kuhn and *Comptonia peregrina* (L.) Coult., the shrubby understory usually contains *Gaylussacia dumosa* (Andr.) T. & G. and *Hamamelis virginiana* L. *Toxicodendron radicans* Ktze. ssp. *radicans* is found in most of the low areas and *Woodwardia virginica* (L.) Sm. often flourishes near the bogs.

The aquatic vegetation has coastal-plain elements; the most abundant plant in shallow water is *Nymphoides cordata* (Ell.) Fern. Bladderworts are less conspicuous, but of the eight species found in the park, four are typically coastal-plain. *Utricularia purpurea* Walt. is the most abundant and luxuriant, often covering the bottom in shallow water. *Utricularia radiata* small occurs only during late summer, when flowering scapes are occasionally present in many of the deeper lakes. *Utricularia subulata* L., more properly a land plant, is common around the lakes, varying from plants the size of pinheads to ones with forking stems several centimeters high. *Utricularia gibba* L. is a rare coastal-plain plant in Nova Scotia which blooms regularly in the quaking margin of Grafton Lake (Maher et al., 1978).

Along the lake shores, *Euthamia galetorum* (Greene) Friesner is usually abundant and even invades areas of shallow water. *Panicum virgatum* L. var. *spissum* Linder is common on the upper edges of the beaches, especially in sandy or gravelly areas; *Decodon verticillatus* (L.) Ell. is found as scattered populations in the western part of the park. More widespread *Juncus militaris* Bigel. often forms pure colonies extending out into the deeper water, and *Spartina pectinata* Link is sometimes present on the rocky shores (Stanley et al., 1973).

Following is a list of plants typical of southwestern Nova Scotia, many of them unknown elsewhere in Canada; scientific names and their authorities are those given in Gray's Manual (Fernald, 1950).

Lycopodium inundatum L. var. *bigelovii* Tuckerm. Common on peaty margin of Lake Peskowsk; many intermediate forms are present in an abandoned mill-pond near the west end of Lake Peskowsk.

Dryopteris simulata Davenp. Scattered colonies near the lakes and streams.

Woodwardia areolata (L.) Moore. One station at the northern end of Little Red Lake (Stanley et al., 1973); present also near Sand Lake outside the park, very local in southwestern Nova Scotia, while *W. virginica* is abundant.

Glyceria obtusa (Muhl.) Trin. Scattered in peaty areas and bogs near the lakes; found elsewhere in a few locations in southwestern New Brunswick.

Panicum dichotomiflorum Michx. var. *puritanorum* Svenson. Several locations on sandy beaches of Lake Kejimkujik; plants small and prostrate.

Panicum virgatum L. var. *spissum* Linder. Common, often in large pure stands on sand beaches.

Panicum longifolium Torr. Peaty beaches, more common westward in the park and along the lower Mersey River.

Panicum spretum Schultes. Scattered throughout lake margins, its tall height permits it to compete with other grasses.

Cyperus dentatus Torr. Rare on sand beaches around Lake Kejimkujik; the only species of *Cyperus* present in southwestern Nova Scotia.

Rhynchospora capitellata (Michx.) Vahl. Common on the lake shore, along with forma *discutiens* (C. B. Clarke) Gale.

Carex bullata Schkuhr. Widespread in meadows and edges of bogs.

Xyris caroliniana Walt., or its northern segregate. Common on many of the beaches; variable in character.

Smilax rotundifolia L. Small patches on the edges of the lakes or streams; rarely luxuriant, but commonly present (Figure 2).

Sisyrinchium atlanticum Bickn. Common beach-species, and the principal *Sisyrinchium* in the park.

Toxicodendron (Rhus) radicans. Ktze. ssp. *radicans*. Common. All the poison ivy shows some of the characteristics of ssp. *radicans*. Vine-like growth is seen only along streams to the west.

Ilex glabra (L.) Gray. Common around the lakes in the southern third of the park.

Hypericum virginicum L. var. *fraseri*. (Spach) Fern., is the common taxon near the drumlin area, while the typical var. *virginicum* becomes more abundant westward.

Rhexia virginica L. Common, especially on the damp sand beaches.

Decodon verticillatus (L.) Ell. var. *laevigatus* T. & G. Very rare in slate areas, more common westward, and very common around Mud Lake. In some of the lakes, plants of this species grow in shallow water. The plants are all of the northern variety with the lower leaf-surface glabrous.

Hydrocotyle umbellata L. (Figure 1). Scattered on the east side of Kejimkujik Lake, with isolated stations across the lake at Jeremy Bay and several kilometers away in a cove on George Lake. (Roland, 1980). The plants can survive in a meter of water with leaves floating at the surface; during a year of low water the species rapidly spreads and flowers on the wet mud.

Utricularia subulata L. This typical coastal-plain plant is common on peaty lake-beaches. It varies from plants the size of pin-heads to branching plants several centimeters tall.

Utricularia radiata Small. Difficult to find, these delicate plants are conspicuous only when flowering scapes are present. Scattered in five lakes, floating in deep water.

Utricularia gibba L. Common at the board-walk, Grafton L., and at Mud Lake, growing on wet mud.

Utricularia purpurea Walt. Common and often luxuriant. It often forms a pure growth on the bottom of shallow lakes; rarely seen in flower.

Cephalanthus occidentalis L. In muck or alluvial soil in the



Figure 1. Southwestern Nova Scotia, showing location of Kejimkujik National Park. Below, outline of the park with locations of *Hydrocotyle umbellata* indicated with dots.

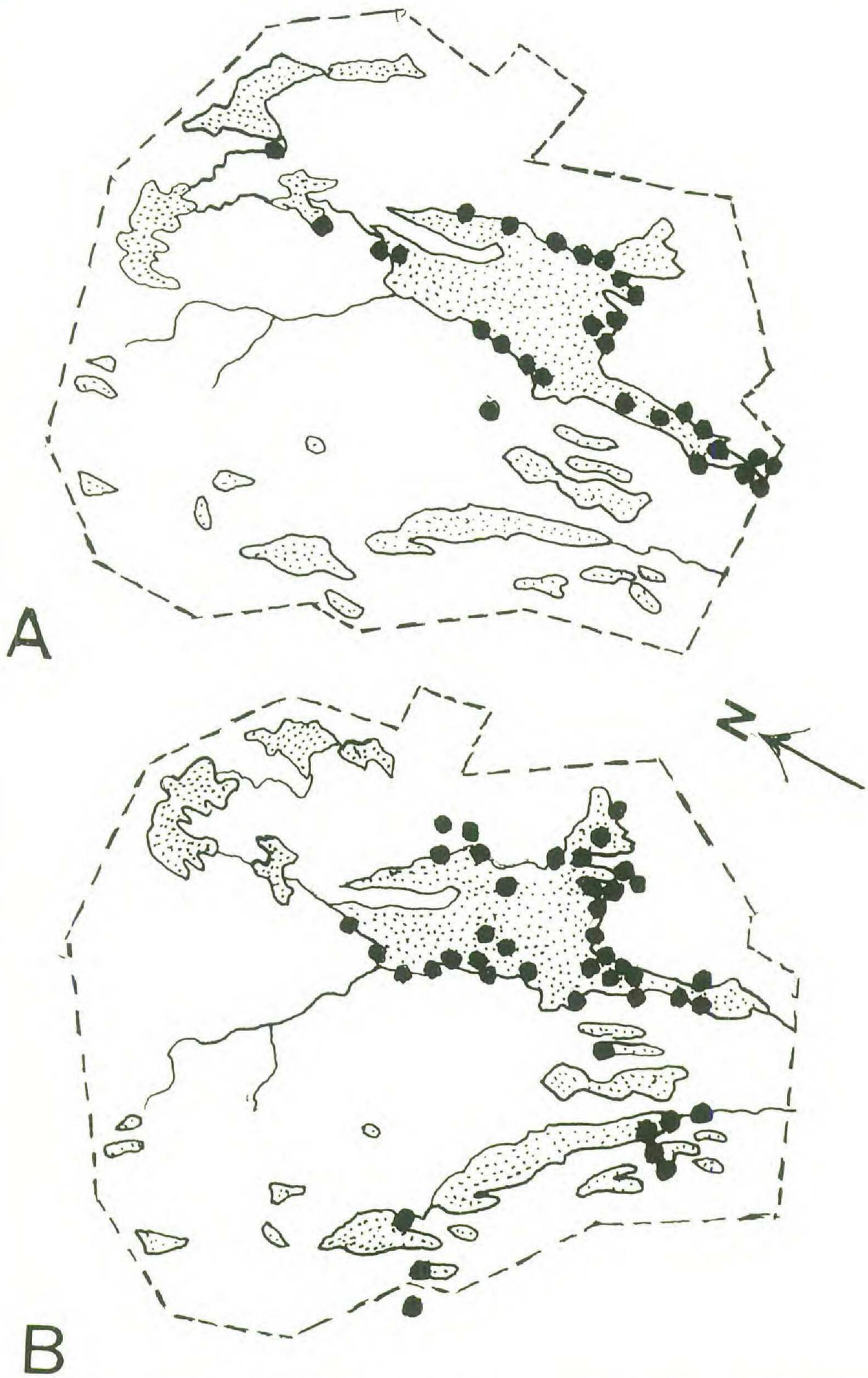


Figure 2. Kejimikujik National Park. **A.** Distribution of buttonbush, *Cephalanthus occidentalis*; **B.** Distribution of *Smilax rotundifolia*.

eastern area around Lake Kejimikujik and down the Mersey River (Figure 2), plants small and heavily browsed by deer.

Euthamia galetorum (Greene) Friesner. One of the most common and typical park-species found on every beach, and at times covers mud-flats in shallow water. Plants are usually tall and narrow with small inflorescences, occasionally with numerous branches more typical of *Euthamia tenuifolia* Pursh.

DISCUSSION

The above records represent, in many cases, extensions of range northeastward towards the interior of Nova Scotia. Most of these species are found along the eastern side and the islands of Lake Kejimikujik, where ample beaches occur and the underlying rock is slate. *Hydrocotyle umbellata*, one of the rare plants of the Tusket River system, only occurs scattered along this eastern slaty shore. A few species, e.g., *Decodon verticillatus*, are more common westward in the granitic and greywacke areas. The southeastern section of the park thus contains a good representation of the southwestern coastal plain flora, in an area which will be protected from any great disturbance in the future.

LITERATURE CITED

- FERNALD, M. L. 1921. The Gray Herbarium Expedition to Nova Scotia. *Rhodora* 23: 89–111, 130–152, 153–171, 184–195, 223–245, 257–278, 284–300.
- . 1922. Notes on the flora of western Nova Scotia 1921. *Rhodora* 24: 157–181, 201–208.
- . 1950. Gray's Manual of Botany, 8th ed. Amer. Book Co. Boston, MA.
- KEDDY, P. A. 1985. Lakeshores in the Tusket River Valley, Nova Scotia. *Rhodora* 87: 309–320.
- MAHER, R. V., D. J. WHITE, G. W. ARGUS AND PAUL A. KEDDY. 1978. The Rare Vascular Plants of Nova Scotia. Nat. Museums of Canada, Ottawa.
- RESOURCE ATLAS AND BASE DESCRIPTION OF KEJIMKUJIK NATIONAL PARK. 1976. Report prepared for Parks Canada, Ottawa, by Eastern Ecological Research Ltd.
- ROLAND, A. E. 1980. *Hydrocotyle umbellata* in Nova Scotia. *Rhodora* 82: 517–518.
- . 1982. Geological background and physiology of Nova Scotia. N. S. Inst. Sci., Halifax.
- STANLEY, J. M., P. COMEAU AND D. G. DODDS. 1973. The vegetation of the Kejimikujik National Park. Mimeo. for Parks Canada. Rept. prepared under contract, Forest Management Institute, Ottawa.

WEATHERBY, C. A. 1942. Two weeks in southwestern Nova Scotia. *Rhodora* 44: 229-236.

PROFESSOR EMERITUS
DEPARTMENT OF BIOLOGY
NOVA SCOTIA AGRICULTURAL COLLEGE
TRURO, NOVA SCOTIA
CANADA B2N 5E3